LIBRARY
NOV 27 19
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

Tuna Newsletter

National Marine Fisheries Service
- Southwest Region
- Southwest Fisheries Science Center

November 1992 Issue 107

U.S. TUNA STATISTICS

Editor's note: The following articles were prepared by NMFS personnel from data and information gathered from sources in the U.S. tuna industry.

U.S. CANNED TUNA INDUSTRY HIGHLIGHTS, SECOND QUARTER 1992

Total receipts of tuna by U.S. canners during the second quarter of 1992 (April-June) decreased by 12% to the equivalent of 114,600 short tons (st) of whole fish (round weight), compared to the second quarter of 1991 (Table 1). The principal species received was skipjack tuna with 47% of the total, followed by yellowfin and albacore with 31% and 22% of the total, respectively. Receipts for the first two quarters of 1992 totaled 225,100 st, a 4% decrease from the previous year (Table 2). Albacore receipts were up

Table 1. Total U.S. cannery receipts (st) by classification of tuna for the second quarters of 1991 and 1992. Totals may not add due to rounding.

Apr-Jun	Type	Albacore	Skipjack	Yellowfin[1]	TOTAL
1991	ROUND	20,600	50,800	37,300	108,700
	GILLED & GUTTED	0	0	1,500	1,500
	LOIN	1,200	5,700	1,900	8,900
	TOTAL (as received)	21,900	56,500	40,800	119,200
	TOTAL (estimated round wt)[2]	23,400	63,700	43,400	130,500
1992	ROUND	24,700	48,300	24,700	97,700
	GILLED & GUTTED	0	0	1,200	1,200
	LOIN	0	2,600	4,300	6,900
	TOTAL (as received)	24,700	50,900	30,200	105,800
	TOTAL (estimated round wt)[2]	24,700	54,100	35,700	114,600

[1]May include a small amount of bigeye tuna.

[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 2. Total U.S. cannery receipts (st) by classification of tuna for the first two quarters of 1991 and 1992. Totals may not add due to rounding.

Jan-Jun	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
1991	ROUND	34,200	96,300	58,900	189,500
	GILLED & GUTTED	0	0	2,300	2,300
	LOIN	3,600	11,800	3,200	18,600
	TOTAL (as received)	37,800	108,100	64,400	210,300
	TOTAL (estimated round wt)[2]	42,400	122,800	68,600	233,800
1992	ROUND	45,900	97,800	42,100	185,800
	GILLED & GUTTED	0	0	1,700	1,700
	LOIN	0	11,000	5,700	16,600
	TOTAL (as received)	45,900	108,700	49,500	204,100
	TOTAL (estimated round wt)[2]	45,900	122,400	56,800	225,100

[1]May include a small amount of bigeye tuna.

[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

IN THIS ISSUE

- U.S. Canned Tuna Industry Highlights, Second Quarter of 1992 1
- U.S. Tuna Fisheries Update 3
- Tuna Tagging Campaign in South Pacific Approaching End of Impressive 3-Year Run 4
- Recent Developments in Tuna Fisheries: News from Around the World 6

6% for the second quarter and up 8% for the first two quarters of the year, while yellowfin and skipjack receipts were down 18% and 15%, respectively, for the second quarter and down 17% and less than 1% for the first two quarters. Although the vast majority of tuna received by U.S. canners is whole fish, some quantity of tuna is received as loins or gilled-and-gutted. The ratio of tuna loins to total receipts for the second quarter of 1992 was unchanged at 7%. Receipts of tuna loins for the first two quarters of 1992 totaled 16,600 st, down 11% from the previous year. (The round weight totals used above were approximated by converting weights of loins and gilled-and-gutted receipts by factors of 2.25 and 1.11, respectively. For the remainder of this article, unconverted receipts are used unless otherwise stated.)

Table 3. U.S. cannery receipts (st) of domestic and imported tuna by species for the second quarters of 1991, 1992 and the recent (1987-91) second quarter averages. Totals may not add due to rounding.

Apr-Jun	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
		AMERICAN SAMOA & CALIFORNIA			
1991	DOMESTIC	1,900	23,400	15,600	40,900
	IMPORTED	7,300	14,300	6,000	27,600
	TOTAL	9,200	37,700	21,700	68,600
1992	DOMESTIC	500	20,800	12,800	34,200
	IMPORTED	5,300	6,600	8,400	20,300
	TOTAL	5,800	27,400	21,200	54,500
1987-91 Average	DOMESTIC	1,100	23,400	15,300	39,800
	IMPORTED	5,000	10,800	3,800	19,700
	TOTAL	6,100	34,300	19,100	59,500
		PUERTO RICO			
1991	DOMESTIC	0	4,100	3,300	7,300
	IMPORTED	12,700	14,800	15,800	43,300
	TOTAL	12,700	18,800	19,100	50,600
1992	DOMESTIC	*	5,600	4,000	9,600
	IMPORTED	18,900	17,900	4,900	41,700
	TOTAL	18,900	23,500	9,000	51,300
1987-91 Average	DOMESTIC	200	6,400	15,100	21,700
	IMPORTED	18,600	16,700	14,500	49,800
	TOTAL	18,800	23,100	29,700	71,500
		TOTAL			
1991	DOMESTIC	1,900	27,500	18,900	48,200
	IMPORTED	20,000	29,100	21,900	70,900
	TOTAL	21,900	56,500	40,800	119,200
1992	DOMESTIC	600	26,400	16,900	43,800
	IMPORTED	24,200	24,500	13,300	62,000
	TOTAL	24,700	50,900	30,200	105,800
1987-91 Average	DOMESTIC	1,400	29,800	30,400	61,600
	IMPORTED	23,600	27,500	18,300	69,500
	TOTAL	24,900	57,300	48,800	131,000

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

Table 4. U.S. cannery receipts (st) of domestic and imported tuna by species for the first two quarters of 1991, 1992 and the recent (1987-91) averages. Totals may not add due to rounding.

Jan-Jun	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
1991	DOMESTIC	5,000	53,700	28,500	87,200
	IMPORTED	32,800	54,300	35,900	123,100
	TOTAL	37,800	108,100	64,400	210,300
1992	DOMESTIC	2,900	58,900	29,000	90,800
	IMPORTED	43,000	49,900	20,500	113,400
	TOTAL	45,900	108,700	49,500	204,100
1987-91 Average	DOMESTIC	3,200	52,900	53,900	110,000
	IMPORTED	45,600	52,300	33,500	131,500
	TOTAL	48,900	105,300	87,400	241,500

[1]May include a small amount of bigeye tuna.

Receipts of tuna in American Samoa and California for the second quarter of 1992 were down 21%, compared to the second quarter of 1991, mainly due to substantial decreases in skipjack and albacore receipts (Table 3). Receipts in Puerto Rico were up 1% with increases in albacore and skipjack receipts offsetting a large decrease in yellowfin receipts. Domestically-caught deliveries to canneries in Puerto Rico were up 32% while the domestic component of deliveries to American Samoa/California was down 16%. Skipjack was easily the largest component of all domestic deliveries for the first two quarters of 1992 at 58,900 st, followed by yellowfin, 29,000 st, and albacore, 2,900 st (Table 4). Imports accounted for 56% of the tuna delivered to U.S. canners for the first half of 1992.

Skipjack was the leading import for the second quarter of 1992 at 24,500 st, followed very closely by albacore at 24,200 st (Table 5). The leading supplier was Taiwan, with 25% of the import market, followed by South Korea and Spain with 18% and 16% of the market, respectively. The western Pacific Ocean was the main source of skipjack and yellowfin for the second quarter of 1992, while the eastern Atlantic was the leading source of albacore (Table 6)

Contract prices for domestically caught tuna delivered to U.S. canners in the second quarter of 1992 were substantially lower than 1991

Table 5. U.S. cannery imports (st) of tuna by species[1] and source (flag of catcher vessel) for the second quarter of 1992. Totals for the second quarter of 1991 are given for comparison. Note that the flag of the catcher vessel does not necessarily reflect the country of export or point of shipment. Totals may not add due to rounding.

COUNTRY	1992				1991
	ALB	SKJ	YFT[2]	TOTAL	TOTAL
ECUADOR	0	600	700	1,300	2,100
MICRONESIA	0	1,000	600	1,600	0
FRANCE	*	1,800	500	2,300	2,100
GHANA	0	4,000	1,300	5,300	8,400
GRAND CAYMAN	200	300	*	500	200
JAPAN	6,100	2,300	*	8,400	6,500
MALTA	0	1,000	200	1,300	1,200
NEW ZEALAND	300	0	0	300	700
PANAMA	900	800	300	2,000	2,700
SOUTH AFRICA	3,400	0	*	3,400	0
SOUTH KOREA	200	2,100	1,100	3,300	12,900
SPAIN	100	4,100	100	4,300	11,600
TAIWAN	12,800	2,000	4,100	18,900	17,700
U.S.A.	0	400	1,300	1,700	100
VANUATU	0	3,800	1,000	4,800	2,000
OTHER	200	300	2,100	2,700	2,800
UNKNOWN	*	0	100	100	0
TOTAL (as received)	24,200	24,500	13,300	62,000	70,900
TOTAL (estimated rnd wt)[3]	24,200	27,700	18,800	70,700	83,400

*Less than 100 st reported for this category.

[1]ALB=albacore; SKJ=skipjack; YFT=yellowfin.

[2]May include a small amount of bigeye tuna.

[3]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 6. Receipts (st) of tuna by U.S. canneries by species[1] and area of capture for the second quarters of 1991 and 1992. Totals may not add due to rounding.

SOURCE	1991			1992		
	ALB	SKJ	YFT[2]	ALB	SKJ	YFT[2]
E. ATLANTIC OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	4,100	14,300	13,300	9,100	16,400	4,200
TOTAL	4,100	14,300	13,300	9,100	16,400	4,200
W. ATLANTIC OCEAN						
DOMESTIC	0	0	0	*	0	0
IMPORTED	7,300	400	1,300	4,700	*	100
TOTAL	7,300	400	1,300	4,700	*	100
E. PACIFIC OCEAN						
DOMESTIC	*	3,400	4,600	100	2,500	1,800
IMPORTED	0	100	1,900	400	1,500	700
TOTAL	*	3,500	6,600	500	4,000	2,400
W. PACIFIC OCEAN						
DOMESTIC	1,900	24,100	14,300	400	23,900	15,100
IMPORTED	7,000	13,800	5,300	8,400	5,800	7,900
TOTAL	8,800	37,900	19,500	8,800	29,700	23,000
INDIAN OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	1,600	400	100	1,500	800	400
TOTAL	1,600	400	100	1,500	800	400

*Less than 100 st reported for this category.

[1]ALB=albacore; SKJ=skipjack; YFT=yellowfin.

[2]May include a small amount of bigeye tuna.

prices for all categories of fish (Table 7). U.S. imports of canned tuna packed in water totaled 47,800 st for the second quarter of 1992 and 101,400 st for the first six months of the year.

U.S. TUNA FISHERIES UPDATE

EASTERN PACIFIC PURSE SEINE FISHERY

During the period January through September 1992, 10 U.S. purse seiners caught an estimated 15,600 metric tons (mt) of yellowfin tuna and 12,300 mt of skipjack tuna in the eastern tropical Pacific (Figure 1). The yellowfin catch was down 3% from the 1991 catch (16,100 mt), while the skipjack catch was up 46% from the 1991 catch (8,400 mt). The fleet continues to be affected by "dolphin safe" policies and is concentrating its effort on skipjack and yellowfin not associated with dolphins.

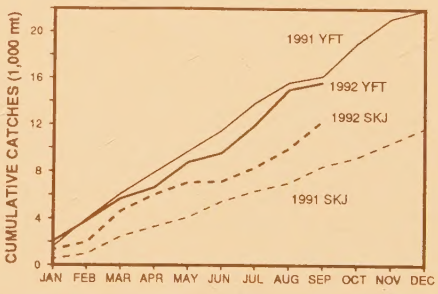

Figure 1. Cumulative tuna catches, by month, for the U.S. eastern Pacific purse seine fishery, 1991 and 1992.

WESTERN PACIFIC PURSE SEINE FISHERY

During the period January through August 1992, 45 U.S. purse seiners landed an estimated 84,000 mt of skipjack tuna and 34,200 mt of yellowfin tuna in the western Pacific (Figure 2). The skipjack landings were down 20% from the 1991 landings (105,400 mt) and the yellowfin landings were up 1% from the 1991 landings (33,900 mt).

Table 7. Contract price ranges (U.S. $ per st) for skipjack and yellowfin tuna for delivery to U.S. canneries in American Samoa and Puerto Rico by U.S. vessels arriving from trips in second quarter 1991 and 1992.

SIZE CLASS (lbs.)	SKIPJACK		YELLOWFIN	
	1991	1992	1991	1992
<3	345-460	165-385	345-460	165-385
3 to 4	545-660	365-585	545-660	365-585
4 to 7.5	740-855	560-780	740-855	560-780
7.5 to 20	805-920	610-835	815-930	620-840
>20	---	---	870-985	750-905

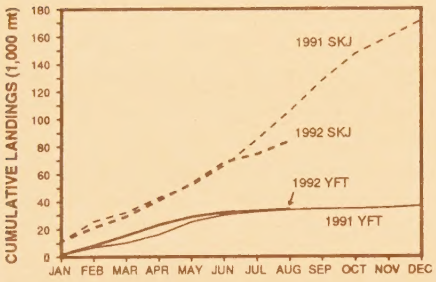

Figure 2. Cumulative tuna landings, by month, for the U.S. western Pacific purse seine fishery, 1990 and 1991.

NORTHERN PACIFIC ALBACORE FISHERY

The 1992 U.S. troll fishery had slowed down significantly as of early October, with most vessels leaving Canadian waters, and a few vessels still fishing west of Oregon where catch rates ran up to 100 fish per day. The landings total as of early October was approximately 2,350 mt, and it is expected to exceed 2,700 mt by season's end. This will certainly be an improvement over last season's record low of 1,845 mt landed. The average size of albacore caught in the north Pacific during the 1992 troll season was just under 11 pounds.

ATLANTIC BLUEFIN TUNA FISHERY

The U.S. Atlantic bluefin tuna fishery is regulated with an ICCAT annual catch quota of 1,387 mt. As of October 9, the total commercial landing for 1992 stood at 992 mt, up 21% from the 1991 commercial landing (818 mt) for the same period. The fishery for large medium (178-196 cm) and giant (over 196 cm) size classes was closed on September 16 to all vessels permitted in the general category when the 531 mt quota (minus a 40 mt set aside for areas south of Cape Cod) was reached. The fishery was closed to all vessels in the harpoon category on October 13 after the annual quota of 53 mt for that category was reached.

GULF OF MEXICO YELLOWFIN TUNA FISHERY

Preliminary data show that in 1991, 187 U.S. longliners landed 3,000 mt of yellowfin tuna in the Gulf of Mexico (Figure 3). Yellowfin landings for 1991 were down 17% from 1990, when 234 longliners landed 3,600 mt. (*Data provided by Guy Davenport, NMFS Southeast Fisheries Science Center, Miami, Florida*)

Figure 3.

Gary Rensink and Doug Prescott, SWFSC, and Dick Seamans, NMFS Northeast Region, contributed information for this article on fisheries update.

REPORTS

Editor's note: Original reports are published as a service to subscribers and may not represent the views of the NMFS. Readers should contact the authors of reports for details, if needed.

TUNA TAGGING CAMPAIGN IN SOUTH PACIFIC APPROACHING END OF IMPRESSIVE THREE YEAR RUN

Pierre Kleiber, La Jolla Laboratory, Southwest Fisheries Science Center, National Marine Fisheries Service, NOAA, P.O. Box 271, La Jolla, California 92038

The South Pacific Commission's Regional Tuna Tagging Programme (RTTP) has been tagging tropical tunas, primarily yellowfin and skipjack, in a large area of the central and western Pacific Ocean. The RTTP is run by the Tunas and Billfish Programme (TBAP), located at South Pacific Commission headquarters in Noumea, New Caledonia. Its field operations, begun in late 1989, are conducted mostly from the 170-ton, Japanese style pole and line vessel, *Te Tautai*, chartered from the National Fishing Corporation of Tuvalu and crewed from captain to cook to deckhand by an intrepid band of Tuvaluan fishermen.

The tuna harvest in the central and western Pacific, grown to well in excess of one million tons annually, is the largest share of tuna production worldwide and is worth billions of dollars. Various domestic and high-seas fleets are involved in the fishery, and the area in question is tiled by a mosaic of economic zones with only a few patches of international water. The potential for contention and concern about the tuna resource is therefore high. In this situation, the overriding objective of the RTTP is to provide scientific information for assessing the status of the resource and for estimating the

degrees of actual or potential interaction among the various tuna fisheries in the region.

BUILDING ON PREVIOUS TAGGING PROGRAM

The RTTP is a follow-up of the Skipjack Survey and Assessment Programme (SSAP) which was conducted some ten years earlier in approximately the same region. A repetition of the SSAP is justified due to the rapid buildup of commercial tuna fishing in the region since the SSAP was conducted. But the RTTP is more than a simple repeat of the SSAP. Its emphasis has been to fill some of the gaps left by the SSAP by tagging a greater proportion of yellowfin and by tagging in areas that the SSAP missed. This has required inventive adjustment and augmentation of the searching, fishing, and bait handling techniques that had been used by the SSAP.

The results have been excellent. The latest approximate totals of releases and returns at the time of this writing are as follows:

	Releases	Returns	Return Rate
Yellowfin	35,000	3,500	10%
Skipjack	90,000	10,000	11%
Bigeye	5,000	300	6%
Total	130,000	13,800	11%

RETURN RATES CONSISTENT WITH INCREASED EXPLOITATION OF TUNA

The SSAP tagged approximately 15,000 tuna, also in a three year period, but the number of yellowfin was much less--around 10%. The return rate was also lower (less than 5%) for the SSAP. The return rate (so far) for the RTTP of more than 10% is indicative of the markedly increased exploitation of tuna in the region over the last decade.

Currently, *Te Tautai* has been operating in the Philippines for several weeks, and has tagged more than 10,000 tuna in that area so far–about half skipjack and half yellowfin with a small number of bigeye. The number of recoveries has reportedly already exceeded 50% in some areas of the Philippines, which speaks to the very high exploitation rate in that region.

LOOK MA, NO POLE

After two more weeks in the Philippines, *Te Tautai* will head south to the Coral Sea to try for a repeat of last year's success in that area in tagging yellowfin large enough that a new poling technique had to be invented--no pole at all. Double and triple poling was found to be too awkward for lifting the large tuna onto the tagging cradle. The crew therefore resorted to a lure on a handline consisting of a length of knotted rope for hauling the heavy yellowfin from the water onto a mattress on the deck instead of an elevated cradle.

THE FUTURE

After three weeks in the Coral Sea, the *Te Tautai* plans are to move to New Caledonian waters for a final tagging effort. That campaign will last untill shortly before Christmas, and by rights should finish up with well-earned festivities at TBAP headquarters in Noumea.

Though the field operations are coming to a close and RTTP will formally cease to exist, the work at headquarters will continue as tag returns come in over the next few years. During the RTTP, scientists of the Tuna and Billfish Programme, when not engaged in tagging operations, have been busy collating and processing the data as they arrive and conducting preliminary analyses. They have also been developing new analyses designed to fit the data and the questions that are asked of those data. They will continue building on that foundation, and we can look forward to interesting and useful reports of their work.

An abstract from a recently published paper written by a SWFSC scientist is also presented in this space as an example of the tuna research conducted at the Center.

RECENT SWFSC PUBLICATION: "METABOLIC AND CARDIAC SCOPE OF HIGH ENERGY DEMAND TELEOSTS, THE TUNAS"

Richard W. Brill, Honolulu Laboratory, Southwest Fisheries Science Center, National Marine Fisheries Service, NOAA, 2570 Dole Street, Honolulu, Hawaii 96822. *Published in Canadian Journal of Zoology, 69:2002-2009.*

The maximum aerobic metabolic rates of tunas are far above those of other fishes. In this review, we attempt to define features of the cardiovascular system that may account for this extreme performance. Tuna hearts are much larger than those of most other fishes and are half the mass of those of similarly sized mammals; however, the ratio of compact to spongy myocardium is not higher than in other active teleosts (except for one tuna species). Myocardial aerobic enzyme activity levels are not significantly elevated. The cardiac outputs of spinally blocked skipjack tuna, *Katsuwonus pelamis*, and yellowfin tuna, *Thunnus albacares*, are roughly four times those of other active teleosts. Ventral aortic blood pressures are the highest among all fishes (more than twice those of rainbow trout, *Oncorhynchus mykiss* (formerly *Salmo gairdneri*), and appear to be due to a high resistance to blood flow in the gills since dorsal aortic blood pressures are not exceptional. Heart rates, cardiac output, and ventilation volumes are high, but gill ventilation and perfu-

sion appear to be well matched (i.e., gill ventilation: perfusion conductance ratios of 1). Blood hemoglobin concentrations of tunas are elevated, essentially identical with those of humans and twice those seen in other fishes. Because their blood oxygen-carrying capacity is high and because skipjack and yellowfin tunas appear to be able to increase the minimum-observed arterial-to-venous oxygen content differences by approximately three times, we predict that they need to increase cardiac output only about two times during maximum rates of oxygen uptake. This ratio is not very different from those of other teleosts.

RECENT DEVELOPMENTS IN TUNA FISHERIES

Editor's note: The following news items, compiled from fishery trade and industry journals, newspapers and NMFS reports, are provided only as a service to our readers. The NMFS does not guarantee their accuracy.

UNITED STATES

Forum Fisheries-U.S. Fishing Treaty Signed-- The South Pacific Forum Fisheries Agency's member countries met with U.S. government and tuna industry representatives in May 1992 in Aukland, New Zealand, to negotiate an extension of a five-year fishing treaty which entered into force in June 1988. The meeting accepted a proposal that allows up to 55 U.S. tuna purse seiners to operate in the region for 10 years in return for an annual payment of $18 million. The multilateral treaty extension is expected to go into effect in June 1993. (INFOFISH *Trade News*, August 15, 1992)

U.S. Approves Pact to Protect Pacific's Dolphins-- The U.S. Senate passed a measure to resolve the international dispute over a tuna fishing method that has killed or harmed thousands of dolphins each year. The International Dolphin Conservation Act of 1992, which President Bush is expected to sign, lifts an import ban reluctantly enforced by the U.S. against a dozen tuna-fishing nations. It calls for a five-year moratorium on certain fishing methods in the eastern tropical Pacific, where dolphin mingle with tuna and often are caught in fishermen's nets. The presidents of Mexico and Venezuela announced last February that they would agree to an international pact containing the five-year moratorium. The measure also provides $3 million for monitoring, enforcement and research in alternative fishing methods and makes the U.S. a "dolphin safe" market in 1994, after which it will be illegal to sell tuna caught with dolphin-endangering fishing techniques. (Los Angeles *Times*, October 9, 1992)

Final Rule Published for Atlantic Bluefin Tuna-- In July, NMFS published a final rule for the 1992 and 1993 Atlantic bluefin tuna fishery implementing the conservation recommendations of the International Commission for the Conservation of Atlantic Tunas. The major recommendations include a 10% reduction in the U.S. quota, a 75% reduction in the opportunity to land fish less than 45 inches, and a prohibition on the sale of smaller bluefin tunas. Some additional measures in the final rule prohibit the sale of bluefin less than 70 inches; prohibit the retention of young school bluefin less than 26 inches; and implement area subquotas and differential bag limits in the angling category for bluefin less than 45 inches. Permits are required to commercially harvest fish in each category except the angling category and may be purchased from the Department of Commerce, NOAA Fisheries Permit Office, 1 Blackburn Drive, Gloucester, MA 01930. (NMFS Northeast Region *Fisheries Fact Sheet*, September 1992)

WESTERN PACIFIC OCEAN

Bluefin Tuna to be Penned in by a Cold Water Curtain-- Japanese are now trying to raise tuna under artificial conditions. A major problem, however, is that even a slight scratch can eventually kill a tuna. That is why general contractor Obayashi Corp. of Japan has netted so much attention with its proposal to pen tuna in with walls of cold water. Bluefin tuna hate cold water, so Obayashi plans to rig up a huge cold water shower in the middle of the Kuroshio current in an area south of Kyushu. The fast moving Kuroshio current averages a tuna friendly 30° C. Obayashi proposes to link pipes into a ring 250 meters in diameter. Sea water pumped from a depth of 300 meters will be circulated through the pipes and sprayed down into the water from just above the surface. The deep ocean water is about 10° C colder than the water in the Kuroshio current, so the cold water spray should create enough of a temperature differential in the area demarcated by the ring to keep the tuna penned in without putting them at risk of bodily damage. The tuna will be hatched and reared to a length of 2-3 cm in land based facilities. From there the fry will be moved to the offshore shower ring where they will be raised until they are 10-20 cm long. After that, they will be released into the open ocean. Obayashi estimates that it will cost about $194 million to build the offshore and shoreside facilities. (*World Fishing*, July 1992)

Japanese Government 1993 Fisheries Budget-- The Fisheries Agency of Japan (FAJ) has submitted a proposed fiscal year 1993 budget (the Japanese 1993 FY begins on April 1, 1993). Global environmental issues are stressed as a category of primary importance. Under this category, the FAJ intends to promote international fisheries resource management activities.

Specifically, the FAJ will concentrate on international tuna fisheries management and tuna resource enhancement. The FAJ plans to: (1) work with concerned countries on the possible formation of a North Pacific tuna fisheries management organization; (2) conduct an emergency survey of Atlantic bluefin tuna resources; and (3) promote bluefin tuna farming. Additional details and the amount of funds allocated for these activities are not yet available. (NMFS Office of International Affairs *Weekly Highlights*, July 13-17, 1992)

U.S. firm to Build Cannery in Papua New Guinea– After six months of negotiations, the Papua New Guinea government signed an agreement with Lawrence Zuanich's Z Fishing Company on May 23, 1992, to build a tuna cannery. Despite the PNG government's effort to attract Zuanich, the agreement had been delayed since March 1992 by a New Ireland provincial government lawsuit. The New Ireland government opposed a proposal to allow Zuanich to fish in the Morgado Square, a possible tuna breeding ground surrounding New Ireland, previously off-limits to foreign fishing vessels. Zuanich has now promised not to fish in the Square until a study determines its potential as a tuna breeding ground. Other features of the investment package include unlimited access to all PNG waters up to 3 miles off-shore (except the Morgado Square), wage subsidies and duty-free entry for most goods needed for the cannery. In return, Zuanich will employ 1,500 PNG workers, provide tuna for PNG consumption and export and build a wharf and repair facilities in addition to the cannery. (NMFS Office of International Affairs *The Latest Developments in Asian Fisheries*, May-June 1992)

EASTERN ATLANTIC OCEAN

Angola-EC Fishing Agreement– Following negotiations between Angola and the European Community, the two parties initialled an agreement on June 12, 1992, establishing EC fishing access to Angolan waters and fees for a two-year period beginning May 3, 1992. The agreement allows participation for up to 27 tuna seiners and 5 longliners. (INFOFISH *Trade News*, September 1, 1992)

Gambia-Japan Fisheries Agreement – Japan reached a private-level agreement with Gambia in late July 1992 as part of its effort to secure access to West African tuna fisheries. The agreement will allow 40 Japanese longliners and 2 purse seiners access to the Gambian EEZ for one year with automatic extensions. Longliners will pay a fee of $1,000 per vessel for 3 months of fishing and $350 per month for a one-month extension (extensions are limited to two months). Purse seiners will pay a fee of $5,000 per vessel for 5 months of fishing. (NMFS Office of International Affairs *Weekly Highlights*, August 17-21, 1992)

WESTERN ATLANTIC OCEAN

Hell Hole Bluefin Tuna Tagging Project– Population size and migration patterns of bluefin tuna in the Hell Hole, the commercial tuna fishing grounds located between Canada's Georges and Browns banks, are becoming better understood as a result of a co-operative Department of Fisheries and Oceans (DFO) and industry study. In total, 133 tuna have been tagged in the Hell Hole area--62 in 1990 and 71 in 1991. Seven of the 62 fish tagged in 1990 have been recaptured. Six of the 7 were caught during the 1991 tuna fishing season--3 in the Hell Hole and 3 off the New England coast. One fish tagged in 1990 was caught about one month later off Cape Cod. To date, no fish tagged in 1991 have been recaptured.

Based on information gathered from the tagging program so far, it appears that bluefin tuna migrate through the Hell Hole seasonally and then head south and that individual tuna return yearly to the same Hell Hole feeding area. Sonic tags were used in the 1991 study to examine the behavior of fish after tagging. The Hell Hole forms the basis for the Southwest Nova Scotia tuna fishery, with a landed value of $5.7 million in 1991. (*Fishing News International*, July 1992.

1992 TUNA MEETINGS

(Organizer; meeting type: sci=science, adm=administration)

- NOV 2-6. Standing Committee on Research and Statistics (SCRS) ICCAT Plenary Sessions. Madrid, Spain. (ICCAT; sci)
- NOV 9-13. 8th Special Meeting of ICCAT. Madrid, Spain. (ICCAT; adm)

INDIAN OCEAN

Establishment of an Indian Ocean Tuna Commission– The Conference for the Adoption of a Draft Agreement for the Establishment of an Indian Ocean Tuna Commission met from June 22-26, 1992, at the headquarters of the Food and Agriculture Organization of the United Nations in Rome. The Conference adopted a revised draft produced by a working group convened to resolve technical and political difficulties in the text before the Conference. The Conference recommended that the resulting Draft Agreement be submitted to the 102nd Session of the FAO Council in November 1992 for formal approval. The Council will also receive the comments of the FAO Committee on Constitutional Matters which meets in September 1992 to review the Draft Agreement. Although significant progress was made in resolving technical difficulties, there

remain substantial political issues, foremost of which are eligibility for membership, objectives of the organization and the vote necessary to set the annual budget of the organization. If the FAO Council can resolve these issues, it will recommend ratification or other form of acceptance to the approximately 30 eligible member countries. The Agreement will enter into force from the date of receipt by the Director-General of FAO of the tenth instrument of acceptance. The U.S. is not currently eligible to become a member of IOTC, should it come into being. It becomes eligible, by right, once any of its vessels engages in fishing in the Indian Ocean for species of tuna covered by the Agreement. (NMFS Office of International Affairs *Weekly Highlights*, July 22-26, 1992)

Southwest Regional Office

501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

Gary Matlock, Acting Director

Southwest Fisheries Science Center

8604 La Jolla Shore Drive--P.O. Box 271
La Jolla, California 92038-0271

Richard A. Neal, Acting Science and Research Director, Southwest Region
Gary Sakagawa, Tuna Program Coordinator

PUBLICATION STAFF

Alan Jackson, Production
David Au, Reports
Ken Raymond, Art Director
Karen Handschuh, Circulation

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES SCIENCE CENTER
8604 LA JOLLA SHORES DR.- P.O. BOX 271
LA JOLLA, CALIFORNIA 92038-0271

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

AIR MAIL

LIBRARY, HONOLULU LABORATORY
NMFS/NOAA (F/SWC2)
2570 DOLE ST
HONOLULU HI 96822-2326